

March 20, 2014 Comment Letter from ODEQ and DLCD

Landslides: see pages 16-17 of comment letter.

Comment:

- Oregon does not agree that additional management measures for landslides are necessary to ensure water quality standards can be achieved
- Scientific evidence and research show a significant dependence on geological setting, storm event size and other non-human factors
- Existing data on landslide rates also does not show how possible effects translate across space in time.
- See 1999 study. In 3 out of 4 study areas landslide density was greater in young stands, 0-10 compared to stands from 10-100 years.
- Landslide density in stands older than 100 years was greater than 10-100 year old stands but less than young stands.
- In 2003 revisions to FPA were enacted to address landslide prone areas and harvesting on high landslide hazard locations
- Montgomery et al. (2000) study found:
  - Landslide sensitivity was dependent on a combination of slope steepness and topography
  - Storms of less than a 4-year recurrence interval triggered landslides in decades after timber harvest
- Montgomery developed model to estimate regional landslide rates based on mapped landslides from 14 industrial forest watersheds assessed under the WA State watershed analysis method.
- The model estimated that contemporary landslide rate was 3-9 times to the estimated background rate for Oregon coast.
- A study by Turner et al. 2010, examined associations between landslide density, precipitation, topography, and forest stand age. The study found:
  - Very few landslides occurred with less than or equal to the 100 year rainfall category.
  - At higher rainfall intensities significantly higher landslide densities occurred on steep slopes(>70% gradient compared to lower gradients
  - Above 150% of 100 year rainfall, the density of landslides was 2-3 times larger in the 0-5 and 6-10 year stand age than in the 11-20, 20-31, 30-41. The effect of stand age was strongest at the highest rainfall intensities.
  - Landslide density was similar to what was found in Oregon in 1999.

- Landslides and debris flows are important ecological disturbance agent and sediment transport processes.
- Comment letter provides the list of protections that have been put into place since 1998. – need to give the state credit for these

#### References:

In 1999, Oregon completed a three-year monitoring study to identify key points to help explain the relationship between storm intensity and landslide frequency. (I not sure what the study was. No references were given.)

Montgomery et al. (2000), examined landslide rates in some of the steepest and least stable terrain in the Oregon Coast Range.

Turner et al. 2010, examined associations between landslide density, precipitation, topography